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Indian Standard

SPECIFICATION FOR POSITIONS AND DIMENSIONS OF IMAGE AREA PRODUCED BY 8 mm TYPE S MOTION-PICTURE CAMERA APERTURE AND MAXIMUM PROJECTABLE IMAGE AREA

UDC 778·553·25 : 771·537 : 771·531·352

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SPECIFICATION FOR POSITIONS AND DIMENSIONS OF IMAGE AREA PRODUCED BY 8 mm TYPE S MOTION-PICTURE CAMERA APERTURE AND MAXIMUM PROJECTABLE IMAGE AREA

Cinematographic Equipment Sectional Committee, ETDC 47

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Indian Standard

SPECIFICATION FOR POSITIONS AND DIMENSIONS OF IMAGE AREA PRODUCED BY 8 mm TYPE S MOTION-PICTURE CAMERA APERTURE AND MAXIMUM PROJECTABLE IMAGE AREA

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 August 1980, after the draft finalized by the Cinematographic Equipment Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard was prepared with a view to standardizing the different parameters of the image area for 8 mm type S cameras and projectors.

0.3 In preparing this standard, assistance has been derived from ISO 3645-1976 'Cinematography — Image area produced by 8 mm Type S motion-picture camera aperture and maximum projectable image area — Positions and dimensions', issued by the International Organization for Standardization (ISO).

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies, for 8 mm Type S cameras and projectors, the dimensions of the image area produced by the camera on the film and the maximum projectable image area as well as the image positions relative to the reference edge of the film, and the perforations used to position the images.

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*Rules for rounding off numerical values (*revised*).

2. GENERAL

2.1 The pull-down claw is located at the minus 2 perforation with respect to the projector or camera aperture. The reason for selecting the minus 2 perforation for positioning is to obtain the positioning perforation as close as possible to the image being projected, yet not so close as to interfere with the optical system and gate structure. Placement of the positioning perforation above the aperture may facilitate the design of self-threading projectors. The claw location above the aperture will also make it easier to maintain the suggested, relatively close sound separation of plus 18 frames for magnetic sound and plus 22 frames for photographic sound.

2.2 If the aperture plate is not in the plane of emulsion, the physical dimensions of the aperture in the camera will be slightly different from the dimensions given in the figures. The exact amount of this difference will depend upon the f-value and focal length of the camera lenses used and upon the distance between the emulsion and the physical aperture. This separation should be no greater than is necessary to prevent scratching of the film.

2.3 It is the intent of this standard to provide a camera image such that the exposed area will always be larger than the maximum projectable image area. Observance of the dimensions given in Table 2 meets this objective without causing double exposure of the area between the frames.

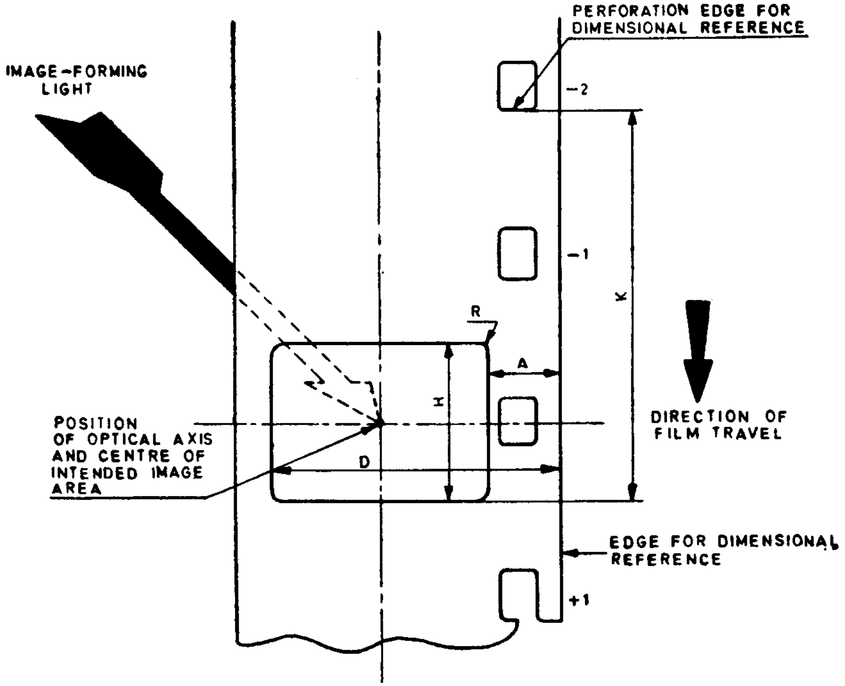
2.4 The penumbra and flare soften the edge of an image formed by a camera aperture. This creates a problem in knowing how to measure the image; in this situation, it has been decided to recommend that the image position be defined at a point where the density in the penumbra is midway (halfway) between the background surrounding density of the film material and the density of a contrasting image area (for example, an exposure to a white card).

2.5 It is recognized that, in many cases, the actual film image area that is projected may be smaller than the projectable maximum. It is intended that the actual projected image area be the largest appropriately shaped figure that can be inscribed within the specified dimensions.

3. DIMENSIONS AND CHARACTERISTICS

3.1 The dimensions shall be as shown in Fig. 1 and 2 and given in Tables 1 and 2 and apply to measurements of the image as formed on, or projected from a recently exposed and processed film (*see* **2.4** *and* **2.5**).

3.2 The angle between the horizontal edges of the camera aperture image and the reference edge of the film shall be 90 ± 1/2°.


PERFORATION EDGE FOR DIMENSIONAL REFERENCE
IMAGE-FORMING LIGHT
−2
−1
K
R
A
H
POSITION OF OPTICAL AXIS AND CENTRE OF INTENDED IMAGE AREA
D
DIRECTION OF FILM TRAVEL
EDGE FOR DIMENSIONAL REFERENCE
+1

The film is shown as seen from inside the camera looking toward the lens.

FIG. 1 CAMERA APERTURE IMAGE

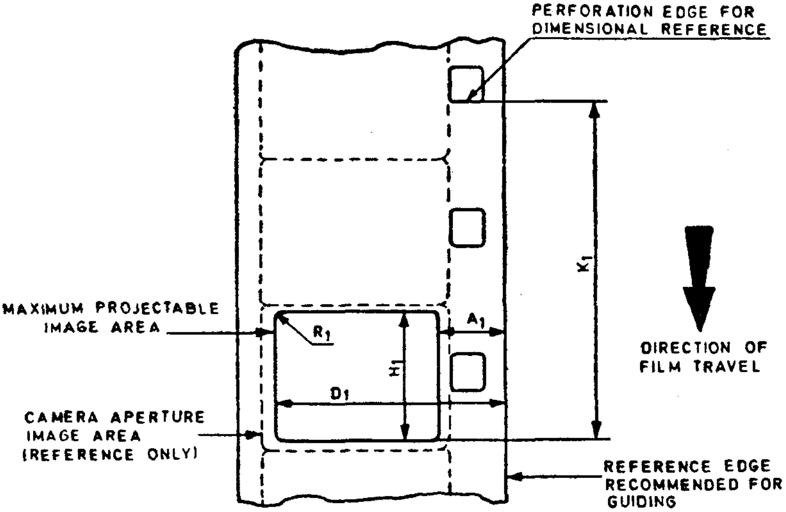
TABLE 1 DIMENSIONS RELATING TO CAMERA APERTURE IMAGE

(*Clause* 3.1)

DIMENSION	mm
A	1·47 *Max*
B	4·32 *Nom*
D	7·16 *Min*
H	$4{\cdot}22^{\ 0}_{-0{\cdot}08}$
*K**	9·98 ± 0·05
R	0·13 *Max*

*A tolerance of ± 0·13 mm is acceptable only for personal-use cameras where intercutting with other camera films is not anticipated.

3.3 The angle of the vertical edges of the camera aperture image shall be 0 ± 1/2° to the reference edge of the film.


PERFORATION EDGE FOR DIMENSIONAL REFERENCE
K1
MAXIMUM PROJECTABLE IMAGE AREA
R1
A1
H1
D1
DIRECTION OF FILM TRAVEL
CAMERA APERTURE IMAGE AREA (REFERENCE ONLY)
REFERENCE EDGE RECOMMENDED FOR GUIDING

The film is shown as seen from inside the projector looking toward the lens.

FIG. 2 MAXIMUM PROJECTABLE IMAGE AREA

TABLE 2 DIMENSIONS RELATING TO MAXIMUM PROJECTABLE IMAGE AREA

(*Clauses* 2.3 *and* 3.1)

DIMENSION	mm
A_1	1·60 *Min*
D_1	7·06 *Max*
H_1	4·01 *Max*
K_1*	9·88 ref
R_1	0·25 *Max*

*For guidance and information only for projectors without framing devices.

3.4 Dimension K is the distance from the bottom edge of the camera aperture image to the bottom of the frame positioning perforation, two pitches above the perforation adjacent to that image.

3.5 Dimension K_1 is the distance lengthwise along the path of the film from the bottom of the maximum image area available for projection to the bottom of the frame-positioning perforation, two perforations above the perforation adjacent to the projected image.

NOTE 1 — The value of dimension A_1 has been chosen so that film having a slight shrinkage when it is projected will be properly centred.

NOTE 2 — If the projector has a fixed edge guide, it should make contact with the edge of the film adjacent to the perforations.